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**Device for measuring, monitoring and/or controlling
a temperature**

The invention relates to an apparatus for measurement, monitoring and/or regulation of a temperature in particular the temperature of the mold wall of an injection mold, by means of at least one measurement element which pulls through a sensor body in a corresponding hole at least as far as its outer walls.

Prior art

The measurement, monitoring and regulation of a temperature is important and necessary in many manufacturing areas. The monitoring of the temperature of an injection mold, as is described, for example, in DE 101 14 228 A1, and JP 60040217 is mentioned merely by way of example. The entire injection process is controlled by means of appropriate thermal measurement elements which determine the mold wall temperature. For this reason, these thermal measurement elements are extremely important.

In known thermal measurement elements, the corresponding supply line is located loosely in a sensor body, with the measurement elements projecting out of the end surface of the sensor body, (for example DE 197 09 609 A1) where they are fixed by means of a weld droplet or the like (see JP 59210333). This results in the end surface being irregular by virtue of the layer of the weld bulge between the medium to be measured and the

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measurement element, which leads to considerable sensor inaccuracies.

Furthermore, EP 0 546 786 A1 discloses a thermal measurement element in which a sensor tip is plugged into a thin small tube. The sensor tip is guided there by upset areas, and has a sliding fit.

Furthermore, a thick mounting sleeve is provided on the equalizing line, and forms the transition from a metal tube between the mounting sleeve and the sensor body to a flexible cable. This mounting sleeve is also used as strain relief for the measurement elements in the sensor body. However, it has the disadvantage that a space must be left free for it in the injection mold, and this represents a weak point in the mold.

Object

The present invention is based on the object of providing an apparatus and a method for production of this apparatus, by which means these disadvantages are avoided. The measurement elements should be securely fixed without the accuracy being adversely affected. Furthermore, the apparatus should be kept as thin as possible in order to weaken the injection mold as little as possible (cable duct).

Achievement of the object

In order to achieve this object, the measurement element is firmly clamped in a crimping sleeve that is in front of the sensor body.

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This ensures that the measurement elements remain in their desired position without having to be fixed by spot measurement elements. There is no need for a thick mounting sleeve, so that the entire equalizing line can be kept thinner.

In some cases, it is even sufficient for only the equalizing line to be fixed in the crimping sleeve. However, the measurement elements could then still move back in the holes in the sensor body if, for example, pressure were exerted from the end surface. In one preferred exemplary embodiment, both the sensor body and the crimping sleeve are therefore crimped.

Should it be possible to insert the measurement elements into the holes in the sensor body such that their end surfaces are located exactly on the same plane as the end surface of the sensor body, then it would be sufficient for them just to be inserted into the holes, and for the crimping process then to be carried out. However, in order to achieve exact positioning of the end surfaces of the measurement elements on the same plane as the end surface of the sensor body, it has been found advantageous to allow the